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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,701	12/31/2001	Byung-Kyu Lee	030681-352	3883
21839	7590	06/02/2005	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			RICKMAN, HOLLY C	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/029,701	LEE, BYUNG-KYU
	<b>Examiner</b>	<b>Art Unit</b>
	Holly Rickman	1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 22 March 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3-8,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 4,15 and 16 is/are allowed.
- 6) Claim(s) 1,3,5-8 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/21/05
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/22/05 has been entered.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 5-6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Tang et al. (US 5750270).

Tang et al. disclose a magnetic recording medium having a substrate, a perpendicular orientation promotion layer (NiFe keeper layer) an fcc underlayer formed from Pt or Pd and a perpendicular recording layer thereon. The fcc underlayer has a thickness of 28-56 nm (col. 11, Table 1). The magnetic layer is formed from a CoCrTa alloy.

With respect to the functional language “perpendicular magnetic enhancement” layer and “perpendicular orientation promoting” underlayer set forth in claims 1 and 2, respectively, the

layers taught by Tang et al. are capable of functioning in the claimed capacity and therefore, meet these functional limitations.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tang et al. (US 5750270) in view of Haratani et al. (US 6420058).

Tang et al. disclose all of the limitations of the claims except for the use of a lubricant layer on top of the disclosed protective layer.

Haratani et al. teach that it is known in the art to deposit a protective layer and a lubricant layer on top of a magnetic recording medium in order to protect the medium surface from contact with the magnetic head (col. 4, lines 48-51).

It would have been obvious to one of ordinary skill in the art at the time of invention to add a lubricant layer to the structure taught by Tang et al. in order to add further protection to the medium surface.

***Allowable Subject Matter***

6. Claims 4 and 15-16 are allowable over the closest prior art to Tang et al.

Tang et al. fails to teach or suggest the use of a Ti perpendicular orientation promoting layer with an fcc perpendicular magnetic enhancement layer thereon (claim 4) or the addition of a soft magnetic layer to a structure including an fcc “enhancement” layer having a specific thickness, a perpendicular orientation promoting layer and a perpendicular magnetic recording layer.

***Response to Arguments***

7. Applicant's arguments and the declaration under 37 CFR 1.132 filed 3/22/05 have been fully considered but they are not persuasive with respect to the rejection of the claims under 35 USC 102 and 35 USC 103 in view of Tang et al.

In the declaration under 1.132, Mr. Lee declares that “[t]he lattice mismatch between the perpendicular magnetic recording layer..and the soft magnetic layer..it too great...for the soft magnetic layer to have appreciable influence on the perpendicular magnetic recording layer. Therefore, crystal orientation promotion by the soft magnetic layer composed of NiFe, as in the Tang et al. patent, would be trivial even if in direct contact to the Co based recording layer and would be virtually non-existent in the specific NiFe/Pd/Co or CoCr structure of the Tang et al. patent.” Thus, Mr. Lee maintains that the lattice mismatch between a recording layer and a “perpendicular orientation promoting underlayer” is a critical factor in determining whether an underlayer is capable of perpendicular orientation promotion.

However, the specification is silent with regard to the criticality of this factor in defining a “perpendicular orientation promoting underlayer.” In fact, the specification seems to indicate that lattice mismatch between the orientation promoting layer and the PMR layer must be reduced via the *enhancement layer* (see first paragraph of detailed description). Moreover, the specification refers to the lattice mismatch between Ti (a disclosed orientation promoting material) and a CoCr PMR as being “large.” Thus, there is no indication in the original disclosure that a lattice mismatch has any bearing on a layers ability to function as a perpendicular orientation promoting layer.

It appears that either (1) the original disclosure does not clearly enable one of ordinary skill in the art to determine what materials fall within the metes and bounds of this limitation because a critical aspect has been left out or (2) Applicants have read a limitation into the claims that the specification does not disclose or require. The examiner believes the latter is the case. The original disclosure does not define the limitation “perpendicular orientation promoting underlayer” in the manner suggested by Mr. Lee. The specification provides examples of perpendicular orientation promoting materials including Ti, Ti alloy and arguably NiFe itself (see example 4). The specification does not provide a definition for this limitation that the examiner has been able to ascertain. The prior art does not appear to provide a definition that would support Mr. Lee’s position. Thus, the examiner must give the language the broadest reasonable interpretation possible. The examiner maintains that this means any layer that is capable of promoting the perpendicular orientation of the magnetic layer.

MPEP 2111.01 III states:

An applicant is entitled to be his or her own lexicographer and may rebut the presumption that claim terms are to be given their ordinary and customary meaning by

clearly setting forth a definition of the term that is different from its ordinary and customary meaning(s). See *In re Paulsen*, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994) (inventor may define specific terms used to describe invention, but must do so "with reasonable clarity, deliberateness, and precision" and, if done, must "set out his uncommon definition in some manner within the patent disclosure' so as to give one of ordinary skill in the art notice of the change" in meaning) (quoting *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1387-88, 21 USPQ2d 1383, 1386 (Fed. Cir. 1992)). Where an explicit definition is provided by the applicant for a term, that definition will control interpretation of the term as it is used in the claim. *Toro Co. v. White Consolidated Industries Inc.*, 199 F.3d 1295, 1301, 53 USPQ2d 1065, 1069 (Fed. Cir. 1999) (meaning of words used in a claim is not construed in a "lexicographic vacuum, but in the context of the specification and drawings"). Any special meaning assigned to a term "must be sufficiently clear in the specification that any departure from common usage would be so understood by a person of experience in the field of the invention." *Multiform Desiccants Inc. v. Medzam Ltd.*, 133 F.3d 1473, 1477, 45 USPQ2d 1429, 1432 (Fed. Cir. 1998). See also *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999) and MPEP § 2173.05(a).

(emphasis added)

Thus, Applicant may rebut the rejections of record by indicating what definition is being used to define "perpendicular orientation promoting underlayer" and where it is supported in the original disclosure. Alternatively, the examiner suggests amending to claims to define the *specific materials* (i.e., Ti/Tialloy and Pd, Au, Pt) used for the enhancement and orientation promotion layers to overcome the art of record.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1773

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773